Mechanism for Isolation of Directionally Purified Signals in a Single, Positionally Unstable Receiver via Novel Signals Analysis Technique Cross-Referencing Measured Rate of Change of Amplitude of Current and Measured Rate of Change of Magnetic Flux Associated with a Fractional Waveform

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Introduction

While the concept of MASERizing cellular communications sc. directing focused beams at individual cell phones has been floated as a theoretical method for increasing the bandwidth of a future cellular system, this was never a viable concept.

Ultra-thin EM blocking materials have been developed which are capable of dramatically improving antenna performance by blocking all signals from directions other than the desired direction; a viable approach given that the transmitter and receiver's position and orientation remain fixed. In the cellular domain, transmitters are fixed and receivers routinely change position and orientation, meaning that leveraging EM-blocking materials toward the end of enhancing the sensitivity of cellular telephone antennae is uniquely challenging prospect.

Abstract

In transistor photofabrication, an emerging trend is the use of partial wavelengths of UV light in order to fabricate transistors that are shorter than the phase height of whole wavelengths of UV. Borrowing from this concept, it should be possible to ascertain an anticipated wave height of a radio emission without "listening to" the entire wave.

Determining the phase height (and therefore frequency) of a particular EM wave in order to ascertain the data conveyed in less time than it takes for the EM to pass through the antennae is crucial to a novel approach to directional isolation of signals.

Certain ultra-thin EM blocking materials block EM unconditionally while others will block EM only when current is passed through a particular part of the material layer. As previously postulated, sections of such a layer wrapped around a traditional antenna could be made to remain "open" to EM by deliberately not passing current through that section of the material.

This, however, can be taken a step further (provided the proper signal processing approach) by alternating the portion of the antenna's EM blocking layer's surface that is non-electrified so that the permissive portion of the layer is alternated by 360 degrees of directionality in each phasing period of the EM. This would allow

for the sampling of EM from a multitude of directions and for signals from each of thousands of directions to be processed discretely.

Provided the capacity to rotate the position of the permissive portion of the layer at such an extreme rate and provided the capacity of a signal processing apparatus to essentially stitch back together bits of data received from different directions in alternating orders (i.e. every 1000th bit is from direction #1 if there are 1000 different directional foci,) it should be possible to pre-process signals from many directions and to make use of only those signals with the correct authenticator salt (a short string unique to the digital dialogue between two nodes repeated prior to the transmission of clusters of data in order to differentiate it from other communications.

As antenna position shifts e.g. as a person holding a cellular telephone paces back and forth as they walk, the specific "heading" the system would identify as the correct heading would shift, but the rate of signal processing would be sufficient to make the transition from "listening on" one heading or another a seamless one.

Frequency Extrapolation from Partial Waveforms by Analysis of the Relationship Between Rate of Change of Current and the Rate of Shift in Strength of the Magnetic Flux Associated with Current

When a waveform strikes an antenna, the EM energy is converted into electrical current. Ordinarily, frequency would be deduced by measuring the distance between pauses in measurable current. If one knew the exact amplitude of a wave about to be received, one could infer frequency by taking three triangulatory sub-samples of any portion of any wave. However, exact amplitude cannot be known in advance given variations in transmission amplitude, weather conditions, as well as natural an man-made barriers that result in constant variance of the strength of the received signal. There is, however, one other way of inferring from which position of a phase a picosecond sub-sample triad is derived without having information concerning the entire wave.

Just as position can be triangulated via signal-strength or interferometric triangulation, the phase position of a waveform from which a grouping of sub-samples are derived can be inferred via the comparison of the rate at which current is changing with the rate at which the magnetism spawned by the translation of EM into current is shifting. Conventional wisdom holds that these two values should be in lock-step with one another, but they are not.

An extremely minute differential between the rate of amperage increase/decrease in the context of a single waveform and the rate of magnetic flux increase/decrease could be predicted to exist. This differential is the result of magnetic moment that is translated through the body of a waveform instantaneously ahead of the arrival of subsequent parts of the waveform.

Electromagnetism's magnetic field (associated with its overall energy level) is self-reinforcing within the context of waveforms. Individual photons in magnetic alignment with one another can exert more force than photons that are magnetically unaligned. The best example of this is helical electromagnetism, which is capable of forcing its way through otherwise blocking or scattering media with far greater effect than non-helicized EM. Even conventional EM has some property of self-reinforcement, however, as the back side of a waveform is a mirror image of the front side. This means that there should be a minimum of one aligned photon available to reinforce any given photon trailing just nanometers behind the first on the back side of the wave.

This may not sound like much, but this reinforcement between aligned photons on the front and back sides of waves means that information concerning a wave yet to be received can be measured by a detector a few picoseconds prior to its arrival through magnetometry as the waveform, in some ways, behaves much as a physical actuator (like a jousting rod) which can exert force somewhat forward of its main source of energy.

If a waveform is in the upswing, for instance, and is 5% of the way past a trough in phase, there would be a greater number of aligned photons and thus more magnetic moment relative to current. At the stage one might term "5%," magnetic moment could be predicted to be slightly excessive relative to current, but its rate of increase would lag behind that of the rate of increase in current. Overall moment would climb with current, but at a rate that would not quite match up. The mid-point, and therefore the overall phase height, could be inferred by computing where this disparity in the rate of increase in magnetic moment and the rate of increase of current would "cross over" and would briefly correlate in a precise fashion. For example, if current were climbing at exactly the same rate as magnetic moment, one would know that a sub-sample of a waveform was taken at the exact mid-point of phase. If the current was declining, but the magnetic moment were declining very slightly more gradually, one could infer that the mid-point had been recently surpassed. Through testing, the precise relationships between these values could be established to enable accurate inference of phase position without the need to observe an entire waveform or to know its amplitude in advance.

Conclusion

If proof-of-concept can be demonstrated, this mechanism would massively reduce noise and increase signal throughput, making it highly desirable for both increasing bandwidth as well as jamming prevention.